



	<h1 style="margin: 0;">TARAline</h1> <h1 style="margin: 0;">CP4.0</h1>												
<b>indicator</b>	Total chlorine (= free chlorine + bound chlorine) Reduced dependence on pH												
<b>Application</b>	Swimming pool water, drinking water, sea water, brine (15% NaCl) Surfactants (tensides) are partially tolerated.												
<b>Chlorination agents</b>	inorganic chlorine compounds: NaOCl (=sodium hypochlorite), Ca(OCl) <sub>2</sub> , chlorine gas, electrolytically generated chlorine												
<b>Measuring system</b>	Membrane covered, amperometric potentiostatic 3-electrode system with electronic inside												
<b>Electronic</b>	Analog version: <ul style="list-style-type: none"> <li>- voltage output</li> <li>- not galvanically isolated electronics</li> <li>- analog internal data processing</li> <li>- output signal: analog (analog-out/analog)</li> </ul> Digital version: <ul style="list-style-type: none"> <li>- electronic is completely galvanically isolated</li> <li>- digital internal data processing</li> <li>- output signal: analog (analog-out/digital)</li> <li style="padding-left: 40px;">or</li> <li style="padding-left: 40px;">digital (digital-out/digital)</li> </ul> mA-version: <ul style="list-style-type: none"> <li>- current output analog</li> <li>- not galvanically isolated electronics</li> <li>- output signal: analog (analog-out/analog)</li> </ul>												
<b>Information about the measuring range of sensors with 4-20 mA</b>	Slope of a sensor can vary production-related or application-related between 65% and 150% of the nominal slope  -> Recommendation to determine the suitable measuring range or the suitable sensor: Concentration to be measured x factor 1.5 = measuring range of the sensor  Example: Concentration to be measured 1.6 ppm x 1.5 = 2.4 -> recommended sensor with a measuring range of 5 ppm												
<b>Accuracy</b> after calibration at repeatability conditions (25°C, pH 7.2 in drinking water) of the upper full scale	<table border="0" style="width: 100%;"> <tr> <td style="padding-right: 10px;">- Measuring range 2 mg/l:</td> <td style="padding-right: 10px;">at 0.4 mg/l</td> <td>&lt;2%</td> </tr> <tr> <td></td> <td>at 1.6 mg/l</td> <td>&lt;2%</td> </tr> <tr> <td>- Measuring range 20 mg/l:</td> <td>at 4 mg/l</td> <td>&lt;1%</td> </tr> <tr> <td></td> <td>at 16 mg/l</td> <td>&lt;3%</td> </tr> </table>	- Measuring range 2 mg/l:	at 0.4 mg/l	<2%		at 1.6 mg/l	<2%	- Measuring range 20 mg/l:	at 4 mg/l	<1%		at 16 mg/l	<3%
- Measuring range 2 mg/l:	at 0.4 mg/l	<2%											
	at 1.6 mg/l	<2%											
- Measuring range 20 mg/l:	at 4 mg/l	<1%											
	at 16 mg/l	<3%											
<b>Slope drift</b> At repeatability conditions (25 °C, pH 7,2 in drinking water)	approx. -1% per month												
<b>Working temperature</b>	Measuring water temperature: 0 ... +45 °C (no ice crystals in the measuring water)												
	Ambient temperature: 0 ... +55 °C												
<b>Temperature compensation</b>	Automatically, by an integrated temperature sensor Sudden temperature changes must be avoided												

	<h1>TARALine CP4.0</h1>	
Max. allowed working pressure	Operation without retaining ring:	0.5 bar, no pressure impulses and/or vibrations
	Operation with retaining ring:	3 bar, no pressure impulses and/or vibrations
Flow rate	approx. 15-30 l/h in TARAflow FLC, small flow rate dependence is given (see diagram last page of the data sheet "Slope of TARALine CP4 versus flow rate")	
pH-range	pH 4 – pH 12, reduced dependence on pH-value (see diagram last page of the data sheet "Slope of TARALine CP4 versus pH")	
Conductivity	10 µS/cm – 200 mS/cm (brine)	
Run-in time	First start-up approx. 2 h	
Response time	T <sub>90</sub> : approx. 3 min. (brine approx. 5 min.)	
Zero point adjustment	Not necessary	
Slope calibration	At the device, by analytical determination, DPD-4-Method (DPD-1 + DPD-3)	
Cross sensitivities/interferences	ClO <sub>2</sub> : factor 1 O <sub>3</sub> : factor 1.3  Corrosion inhibitors can lead to measuring errors. Stabilisers for water hardness can lead to measuring errors.	
Absence of the disinfectant	Max .24 h	
Connection	analog-out/analog version: 4-pole plug adapter analog-out/digital version: 4-pole plug adapter digital-out/digital version: 5-pole M12, plug-on flange 4-20 mA version: 2-pole terminal or 5-pole M12, plug-on flange	
material	Microporous hydrophilic Membrane, PVC-U, PEEK, stainless steel 1.4571	
Size	diameter: approx. 25 mm Length: analog-out/analog version approx. 175 mm analog-out/digital version approx. 195 mm digital-out/digital version approx. 205 mm 4-20 mA version approx. 220 mm (2-pole-terminal) approx. 190 mm (5-pole-M12)	
Transport	+5 ... +50 °C (Sensor, electrolyte, membrane cap)	

	<h1>TARAline CP4.0</h1>						
storage	<table border="1"> <tr> <td>Sensor:</td> <td>dry and without electrolyte no limit at +5 ... +40 °C</td> </tr> <tr> <td>Electrolyte:</td> <td>in original bottle protected from sunlight at +5 ... +35 °C min. 1 year or until the specified EXP-Date</td> </tr> <tr> <td>Membrane cap:</td> <td>in original packing no limit at +5 ... +40 °C (used membrane caps can not be stored)</td> </tr> </table>	Sensor:	dry and without electrolyte no limit at +5 ... +40 °C	Electrolyte:	in original bottle protected from sunlight at +5 ... +35 °C min. 1 year or until the specified EXP-Date	Membrane cap:	in original packing no limit at +5 ... +40 °C (used membrane caps can not be stored)
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Membrane cap:	in original packing no limit at +5 ... +40 °C (used membrane caps can not be stored)						
maintenance	<p>Regularly control of the measuring signal, min. once a week The following specifications depend on the water quality:</p> <table border="1"> <tr> <td>Change of the membrane cap:</td> <td>once a year</td> </tr> <tr> <td>Change of the electrolyte:</td> <td>once a year</td> </tr> </table>	Change of the membrane cap:	once a year	Change of the electrolyte:	once a year		
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Change of the electrolyte:	once a year						
	<p>EMC-Testing DIN EN 61326-1, 61326-2-3 RoHS compliant</p>						

<p><b>Option 1: Membrane cap M48.4S</b></p>	<p>especially for applications in sea water or brine</p> 
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## Spare parts


Type	Membrane cap	Electrolyte	Emery	O-ring
All CP4.0	M48.4E Art. No. 11051-E	ECP1.4/GEL, 100 ml Art. No. 11006.1	S1 Art. No. 11908	14 x 1.8 NBR Art. No. 11806
	For sea water or brine applications: M48.4S Art. No. 11051-S			

(Subject to technical changes!)

**Technical Data**
1. CP4.0 (analog output, analog internal signal processing)

analog-out / analog

A potential-free electrical connection is necessary as the sensor electronic is not equipped with a galvanical isolation.

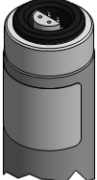
	Measuring range in ppm	Resolution in ppm	Output Output resistance	Nominal slope (at pH 7.2) in mV/ppm	Power supply	Connection
CP4.0H	0.005...2.000	0.001	0...-2000 mV 1 kΩ	-1000	±5 - ±15 VDC 10 mA	4-pole screw connector
CP4.0N	0.05...20.00	0.01		-100		
CP4.0Up	0.05...20.00	0.01	0...+2000 mV 1 kΩ	+100	10 - 30 VDC 10 mA	

(Subject to technical changes!)

2. CP4.0 (analog output, digital internal signal processing)

Analog-out / digital

- The power supply is galvanically isolated inside of the sensor.
- The output signal is galvanically isolated too, that means potential-free.


	Measuring range in ppm	Resolution in ppm	Output Output resistance	Nominal slope (at pH 7.2) in mV/ppm	Power supply	Connection
CP4.0H-An	0.005... 2.000	0.001	analog 0...-2 V (max. -2.5 V) 1 kΩ	-1000	9-30 VDC approx. 56-20 mA	4-pole screw connector
CP4.0N-An	0.05... 20.00	0.01		-100		
CP4.0H-Ap	0.005... 2.000	0.001	analog 0...+2 V (max. +2.5 V) 1 kΩ	+1000		
CP4.0N-Ap	0.05... 20.00	0.01		+100		

(Subject to technical changes!)

### 3. CP4.0 (digital output, digital internal signal processing)

digital-out / digital

- The power supply is galvanically isolated inside of the sensor.
- The output signal is galvanically isolated too, that means potential-free.

	Measuring range	Resolution	Output Output resistance	Power supply	Connection
	in ppm	in ppm			
CP4.0H-M0c	0.005... 2.000	0.001	Modbus RTU	9-30 VDC	5-pole M12 plug-on flange
CP4.0N-M0c	0.05... 20.00	0.01	There are no terminating resistors in the sensor.	approx. 56-20 mA	


(Subject to technical changes!)

### 4. CP4.0 4-20 mA (analog output, analog internal signal processing)

analog-out / analog


A potential-free electrical connection is necessary as the sensor electronic is not equipped with a galvanical isolation.

#### 4.1 Electrical connection: 2 pole terminal clamp

	Measuring range	Resolution	Output Output resistance	Nominal slope (at pH 7.2)	Power supply	Connection
	in ppm	in ppm		in mA/ppm		
CP4.0MA0.5	0.005...0.500	0.001	4...20 mA uncalibrated	32.0	12...30 VDC R <sub>L</sub> 50Ω...R <sub>L</sub> 900Ω	2-pole terminal (2 x 1 mm <sup>2</sup> )  Recommended: Round cable ∅ 4 mm 2 x 0.34 mm <sup>2</sup>
CP4.0MA2	0.005...2.000	0.001		8.0		
CP4.0MA5	0.05...5.00	0.01		3.2		
CP4.0MA10	0.05...10.00	0.01		1.6		
CP4.0MA20	0.05...20.00	0.01		0.8		

(Subject to technical changes!)

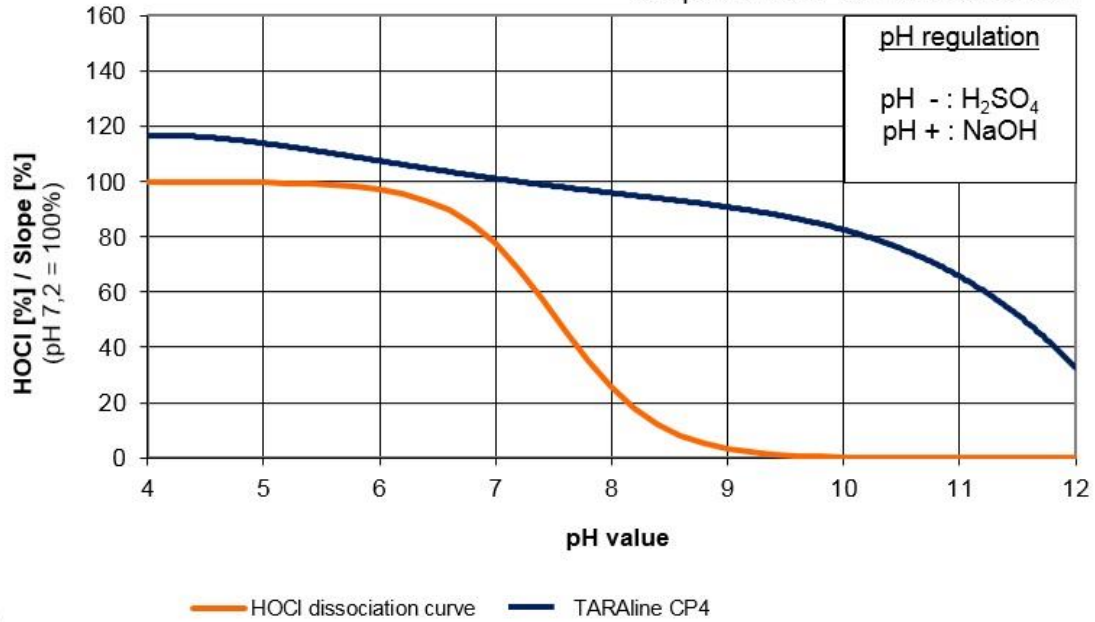
#### 4.2 Electrical connection: 5 pole M12 plug-on flange

	Measuring range	Resolution	Output Output resistance	Nominal slope (at pH 7.2)	Power supply	Connection
	in ppm	in ppm		in mA/ppm		
CP4.0MA0.5-M12	0.005...0.500	0.001	4...20 mA uncalibrated	32.0	12...30 VDC R <sub>L</sub> 50Ω...R <sub>L</sub> 900Ω	5-pole M12 plug-on flange  Function of wires: PIN2: +U PIN3: -U
CP4.0MA2-M12	0.005...2.000	0.001		8.0		
CP4.0MA5-M12	0.05...5.00	0.01		3.2		
CP4.0MA10-M12	0.05...10.00	0.01		1.6		
CP4.0MA20-M12	0.05...20.00	0.01		0.8		

(Subject to technical changes!)

**Slope of TARAline CP4 versus pH**

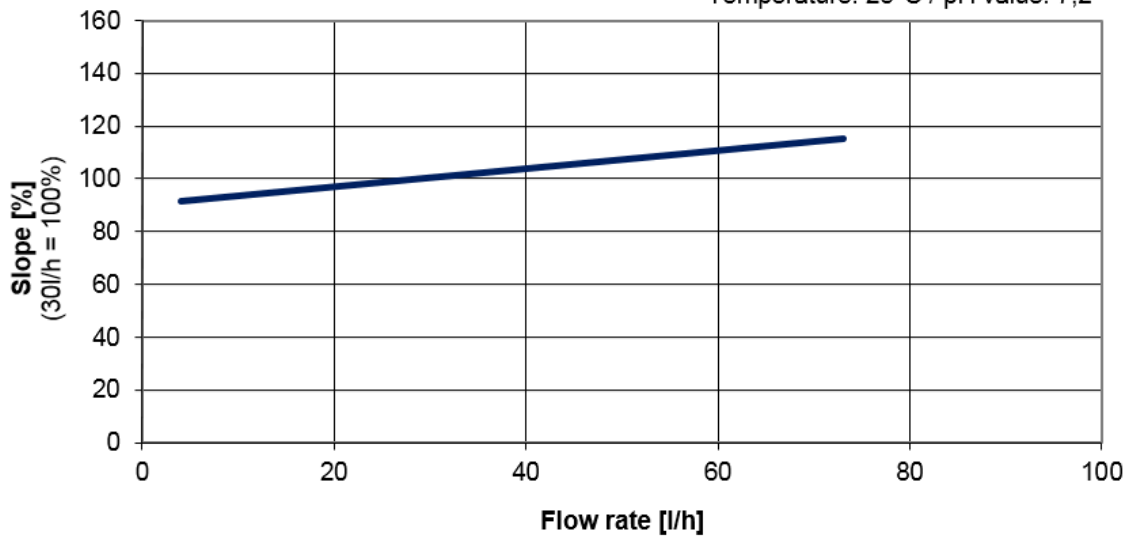
Temperature: 25°C / Flow rate: 30 l/h



CP4\_005

**Slope of TARAline CP4 versus flow rate**

Temperature: 25°C / pH value: 7,2



CP4\_005

This values are only valid for the probe housing FLC1 / FLC3